MATH 102
QUIZ 1A

Name: **ST ID** **section:**

1. Estimate the area under the graph of $f(x) = x^2 - 2x$, from $x = 0$ to $x = 8$ using four rectangles and midpoints.

2. Find the following

   (a) $\dfrac{d}{dx}\displaystyle\int_{\sqrt{x}}^{x^2} \sin(t^2)dt$

   (b) $\sum_{i=1}^{n} \left(3 + \frac{2i}{n}\right)$

3. Find the value of the integral $\int_{-5}^{0}(2x - 4\sqrt{25 - x^2})dx$ by interpreting the integral in terms of areas.

4. Find $\lim_{n\to\infty} \frac{1}{n}\left\{\sqrt[3]{\frac{1}{n}} + \sqrt[3]{\frac{2}{n}} + \sqrt[3]{\frac{3}{n}} + \cdots + \sqrt[3]{\frac{n}{n}}\right\}$

Hint: First express the limit as a definite integral